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Medical Bulletin

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HEADS UP

SHARE

This Information With Your Staff and Patients

Editorial

Share the *Bulletin* With Your Staff and Patients

In surveys of **3,100** aviation medical examiners taken over the past three years, 93 percent indicated that they regularly read the *Bulletin*; 94 percent found the information contained therein to be "useful," but only 22 percent said they shared that information with their office staff. In other words, more than three-fourths of all aviation medical examiners surveyed did not pass along the work-relevant information contained in the *Bulletin* to their nurses, secretaries, and office managers. This is information that could make their work a breeze while providing better services to your airman applicants.

Think about it: By simply providing the information contained in the *Bulletin* for your office staff to read, it's almost like having an aeromedical certification training manager on your staff—*for free*!

For this reason, we ask that you add your office staff to the reading list of this publication. We are also posting a number of notes throughout the *Bulletin* to remind you to share the *Bulletin* with everyone in your office, and when you have all read it, why not put the issue where your airman certification applicants can peruse it? The articles may help them to better understand what is required of them to speed up their certification process and could make life easier for everyone in your office.

Finally, if there is more information we can provide to make the certification process go easier in your office, please write, E-mail, fax, or phone (see masthead on page 2 for contact information), and we will strive to be responsive to your needs and those of your airman certification applicants.

Take Steps to Improve AME Exam Reports Quality

Share This Information With Your Staff

This is an example of information that is meant to be distributed to everyone in your office. This information will upgrade the quality of your transmissions to the Aeromedical Certification Division. Following these four steps—they take only seconds—will vastly improve our service to all airmen by making us more efficient:

1. **Social Security numbers**. In entering applicant information, the aviation medical examiner (AME) or staff person should FIRST query the system by SSN; if no SSN match appears, the airman's name should next be queried to see if the failure to match is due to a faulty entry or a misreading of handwriting (e.g., "0" being read as a "6"). If a pseudo SSN had previously been assigned, that number should be clicked onto (typing in another pseudo SSN creates an additional file for the airman). If none of the above is evident, then assign the pseudo SSN.

2. **Data entry errors**. Please double-check the spelling of the airman's name and the date of the examination to make sure that correct information is being entered. Confirm that the name of the applicant being entered in the computer corresponds to the exam being entered. In addition, always confirm that the correct certificate number (FA number) is being entered.

3. **Address.** When entering an airman's address, make sure the country entered in the address block corresponds to the country the airman lives in (usually "U.S."). There is a separate block on the form to enter the airman's citizenship.

4. **Restrictions.** Confirm that the proper restrictions are placed on the certificate (for example, there is a real difference between "must have available glasses for near vision" and "must wear corrective lenses").

The Federal Air Surgeon's Column

Accelerating the Medical Certification Process

Jon L. Jordan, MD, JD

AT THIS YEAR'S Experimental Aircraft Association (EAA) fly-in at Oshkosh, Wis., I had the opportunity to meet with representatives of some of our customer "alphabet" organizations. These included the host, EAA, and the Aircraft Owners and Pilots Association.

The principal focus of the meeting related to delays in the medical certification of applicants for special issuances. In the meeting, we explored possible ways of relieving the backlog of cases at the Aeromedical Certification Division in Oklahoma City.

Unacceptable backlogs are not new to the Aeromedical Certification Division (AMCD) and to the airmen who are seeking medical certification. In the past, backlogs have been related principally to staffing shortages and the sheer volume of cases awaiting decision. More recently, the increased complexity of cases being considered has further burdened the system. Also, while problems with the AMCD's newly introduced computer processing system are being ironed out, the very introduction of the system has temporarily added to our backlog, mainly because some aviation medical examiners have not yet converted to the new system and their examinations must be processed separately.

Although there are good reasons for our certification processing delays, these give little comfort to airmen. One suggestion that has come up repeatedly and was again proposed in Oshkosh relates to granting aviation medical examiners (AMEs) greater authority to issue medical certificates. While over the years we have granted greater authority to AMEs by modifying certification policies regarding conditions that are not specifically disqualifying under the regulations, specifically disqualifying conditions, as well as conditions that necessitate special follow-up medical evaluations, require special issuances. The regulations do not allow us to delegate special issuance authority to AMEs.

To relieve some of the congestion in the processing backlog, I have asked our Regional Flight Surgeons to become more involved in the medical certification process. Regional Flight Surgeons have been directed to encourage AMEs to call the regional medical offices on cases that might be resolved over the telephone. In some of those cases, the regional office can facilitate the processing of a case or even authorize the AME to issue a certificate, even though the airman has a specifically disqualifying condition. Such an authorization would, of course, be contingent on the airman having all the medical documentation necessary for making a favorable decision. I have also asked our AMCD medical officers to increase their activities in dealing directly with AMEs and, whenever possible, to grant similar authority to issue medical certificates.

The Office of Aviation Medicine has a long-term goal of "same-day certification" for airmen. While currently 95 percent of the airmen who walk into an AME's office walk out with a medical certificate, it's the remaining 5 percent that present a challenge.

Giving AMEs greater telephone access to certification personnel will move us closer toward our goal. I believe, however, that the best way to accelerate to a "one-day" future will be made by fully adopting computer technology and use of the Internet. Therefore, it is absolutely essential that all aviation medical examiners support the implementation of the Internet-based Airman Medical Certification System.

JLJ

Federal Air Surgeon's Medical Bulletin

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Aeromedical Certification Update

Error Letters Still Abundant

By Warren Silberman, DO, MPH

The AME Error Letter System has now been in effect for three years, so I am going to give you the statistics that we have collected from October 1998 through September 1999. I had planned on doing this earlier, but as you know, informing you of the new computer systems took precedence. For the breakdown, see Table 1.

Table 1. Errors: 1998/1999

Problem	No.
Issued certificate to airman on disqualifying medication	184
Issued certificate when told by AMCD to defer	183
Coronary Artery disease	43
Issued certificate to airman under 16 y/o	35
Attention Deficit Disorder (often on disqualifying medication)	9
Myocardial Infarction	6
Diabetes on medication	5
HIV on Anti-viral	5
Valve replacement	4
Transient Ischemic Disorder/Cerebrovascular Accident	4
Seizure disorder	3
"18 g" Heart (without any history provided)	3
Prior Revocation, Denial or Suspension	2
Angina Pectoris	4
Heart Transplant	1
Kidney Stones	1
Permanent Pacemaker	1
Implanted Defibrillator	1
Renal Failure	1

We had to send out 319 aviation medical examiner (AME) "V" letters during 1998-99. You will recall that these letters are given to AMEs who have issued medical certificates to airmen when they should have deferred issuances, or when AMEs issue certificates to airmen who are taking disqualifying medications.

There were 311 AME "W" letters given out during the same period. These letters are given when AMEs issue medical certificates without providing us with sufficient information regarding a medical condition. (You will notice that the total does not add up to the number of error letters given—some of the errors that we defined required a tick mark in more than one category.)

From Table 2, which compares the two reporting periods, it is interesting that the recent data generally mirrors the statistics from 1997-98! Note that issuing a medical certificate to an airman who is taking a disqualifying medication takes the lead again. Also, take notice that most of the improper issuance were for Specifically Disqualifying Medical Conditions. Just about all of these medical conditions are mentioned in the Guide for Aviation Medical Examiners —with the exception of implantable defibrillators and renal failure. I am not going to mention the conclusion that one can draw from the above statement.

Table 2. Comparison of Top 5 Error Letter Problem Areas

	Years	
Reason for Error Letter	**98/9**	**97/8**
Issued certificate to airman on disqualifying medication	184	212
Issued certificate when told by AMCD to defer	183	155
Coronary Artery disease	43	55
Issued certificate to airman under 16 y/o	35	38
Attention Deficit Disorder (often on disqualifying medication)	9	12
TOTALS	454	472

Don't forget that if a potential airman who is not yet 16 years of age comes in for a medical certificate, you cannot issue a student pilot (yellow) certificate until that person's 16th birthday. Our policy is that if they come in for both the medical and the student pilot certificates and they are within 30 days of their 16th birthday, you may write the statement (on the student pilot certificate) that the certificate is Not Valid Until _____ (insert date of 16th birthday).

Improving the New System

The Internet-based Airman Medical Certification System/Document Imaging and Workflow System programs are coming along. We are awaiting the comments from the recent random-sample AME Survey that was sent out. I shall try to answer the comments on your suggestions for improving the system in upcoming articles in the *Bulletin*.

We are receiving more than 1,500 examinations through the Internet each day! I personally thank all AMEs and their office personnel for bearing with us during this implementation period. I know that we are taking the proper route to improving the processing time.

Please Convert to AMCS

With regard to those AMEs who continue to send in hard copy examinations (excluding International and Military AMEs), we are sending lists to the Federal Air Surgeon and to the Regional Flight Surgeons so that they may contact those AMEs directly.

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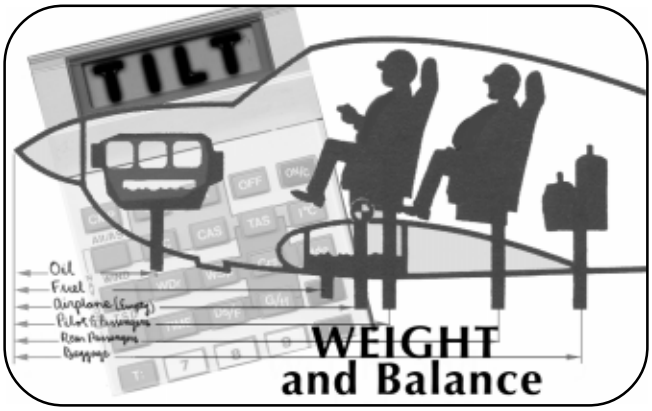
Dr. Silberman manages the Civil Aeromedical Institute's Aeromedical Certification Division.

Dispelling the 170-Pound Myth: Unacknowledged Obesity as a Hazard to Flight Safety

By Major Donato J. Borrillo, MD, JD

Abstract. *The aviation medical examiner (AME) should be concerned about obesity, not only for its much-publicized medical implications, but also because of the importance of accurate body weight in calculations used by pilots for weight and balance. This article reviews the FAA "average passenger weight" and its use in calculating general aviation aircraft weight and balance. The AME should be aware of basic weight and balance calculations and how unacknowledged obesity may be a hazard to the safety of flight.*

PHYSICIANS LEARN IN medical school that the average patient weighs 70 kilograms (154 lb.). Medications, such as those used for advanced cardiac life support, common antibiotics, and over-the-counter regimens generally follow this 70-kg rule-of-thumb.



Similarly, the FAA also allows a pilot to estimate a passenger's weight. Pursuant to the Federal Aviation Regulations (FARs), for weight and balance determination, an average person is said to weigh 170 lb. (77 kg) and a child between two and 12 years of age weighs 36 kg (80 lb.). As a caveat, the FARs recommend that the *actual* weight of the individual should be used *whenever practical.*

Notwithstanding this 170-lb. average, it is this 220-lb. author's opinion that aviators and their passengers appear to be more "Sam Pickwick" (a Charles Dickens character) in form—stout, jovial, and naïve. It is more likely that the average North American pilot or passenger weighs 187 lb. (85 kg), especially since obesity of epidemic proportions now affects an estimated 34 million Americans.

In the October 1999 *Journal of the American Medical Association*, Mokdad and associates reported that the prevalence of obesity (defined as a body mass index equal to or greater than 30 kg/m^2) increased from 12.0 percent in 1991 to 17.9 percent in 1998. A steady increase was observed in all states, in both genders, across age groups, races, educational levels, and occurred regardless of smoking status. The greatest magnitude of increase was in the 18- to 29-year-olds, and those with some college education. The estimated number of annual deaths attributable to obesity among American adults is approximately 300,000 (Allison et al., *JAMA,* Oct. 1999).

Over the past year, this author's own anecdotal review of his 56 completed FAA second- and third-class physical exams yielded an average weight of 182 lb. This survey was not intended as a statistical review; however, I do encourage other AMEs to review their records.

Why should the AME worry about obesity beyond its associated morbidity and mortality? In short, a pilot's calculation of the aircraft weight and balance is fundamental. Weight and balance components are equally important, and even an underweight aircraft may still be improperly balanced. Regarding weight, the amount of lift required to maintain altitude during flight is directly related to the weight of an aircraft and its contents (pilot and passengers). The aircraft simply will not fly if gravity (i.e., weight) exceeds lift or drag exceeds thrust. If the aircraft has eight passengers weighing 190 pounds each, yet estimated at 170 pounds, the potential for a 160-pound error exists. Given that, in many general aviation aircraft it is simply not possible to fill all seats, load the baggage compartment to capacity, carry full fuel, and remain within approved weight and balance center-of-gravity limits, this 160-lb. error may be deadly. One hundred and sixty pounds of weight equals 26.6 gallons of fuel—or approximately half an hour of cruise endurance in a light twin-engine aircraft.

In addition, the weight of the aircraft's contents must be balanced properly. Balance refers to the location of the center of gravity, with its forward and aft (towards the tail) limits, along the longitudinal axis of the aircraft. An aircraft, similar to a teeter-totter, rests on a pinnacle, supported at its center of gravity by one sharp point. As you add or subtract weight to the aircraft, that balance point (i.e., the center of gravity) moves. Add or subtract too much weight forward or aft, and the aircraft will fall off the pinnacle and the pilot will experience some handling problems. In some

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cases, those problems can be serious enough to cause a loss of control.

The forward and aft limits straddle the center of gravity and are established by the aircraft design engineers to assure proper, predictable aircraft control about the horizontal, vertical, and lateral axis. A forward center of gravity limit is specified to assure that sufficient elevator deflection is available at minimum speed, as for landing. The aft center of gravity limit is even more critical during flight maneuvers because the aircraft may have very unstable stall characteristics, the cruising speed will be reduced, and fuel consumption increased. In some cases, the aircraft will be uncontrollable.

In sum, each aircraft has a center of gravity, which when loaded properly, gives maximum stability and control of flight. Lack of appreciation for the effects of weight and balance on the performance of aircraft, particularly in combination with such performance-reducing factors as high-density altitude, frost or ice on the wings, low engine power, severe or uncoordinated maneuvers, and emergency situations, is a prime factor in many accidents. All weight loaded onto an aircraft should be as exact as possible. Given the typical general aviation aircraft's overall lighter weight and lower gross loading limits, the margin for error is much less than for larger commercial aircraft.

Certainly, however, the principles of weight and balance apply to large aircraft used by the air carriers and commercial operators as well. And, any aircraft can be overloaded or loaded out of balance. Since the 1940s, it has been possible to accurately measure onboard weight and balance for large commercial aircraft. In the late 1970s, a magnetic reluctance sensor was developed that was capable of measuring an aircraft's gross weight to within an accuracy of 1 percent and the center of gravity to within 1 percent. A similar system may be found on the 747-400, the A300, the A310, the A320, and the MD-11.

Large aircraft have the same dangerous flight characteristics as small aircraft when weight and balance limits are exceeded, and it is not safe to assume that a large aircraft, because of its apparent abundance of engine power and spacious passenger and cargo compartments, cannot be loaded in an adverse manner. Without an onboard weight and balance measuring device, the same 170-lb. average is used.

Failing to acknowledge the trend toward obesity in our pilots and passengers results in an inaccurate weight and balance determination and jeopardizes the safety of flight. Thus, the AME should pay special attention to a pilot's weight, not only to inform him or her about health risks, but also to remind the airman that it's best to ask the actual weight of each individual before taxiing from the flight line. In some cases, it might evoke an embarrassing answer, but by maintaining weight and balance within published aircraft limitations, nasty airborne surprises will be avoided.

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Available on the Web

Visit the Civil Aeromedical Institute's Web site to read:

√ current and back issues of the *Bulletin*

√ editorials by the Federal Air Surgeon

√ *downloadable* directory of aviation medical examiners

√ great links to aviation-related websites

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much more at the URL:

http://www.cami.jccbi.gov

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Good News for Older Pilots (Including Me!)

By Dr. Guy Baldwin, Senior AME

Recently, I had a discussion with a local ophthalmologist and laser surgeon. He suggested that, since I wear bifocals, he should perform surgery to correct one of my eyes for near vision and the other for distant vision. I was quick to point out that, when this procedure is done, a person becomes monocular ("one-eyed"). To be suddenly monocular causes the loss of depth perception. It won't bother you driving a car, but that first flare on landing is going to be exciting - and it will be for some time. In the past, the FAA did not allow it.

So, I called Dr. **Warren Silberman**, Manager of Aeromedical Certification at [the] FAA [Civil Aeromedical Institute] in Oklahoma City to get the "straight information." Warren stated that guys like me who wear bifocals can have the surgery that corrects one eye for near and the other for distant vision.

If you have the surgery, then for six months afterward while flying, you must wear glasses or contacts that correct both eyes for near and distance vision. When not flying, you remove the corrective lenses and get used to the corrections made by the surgery.

For that six-month period, you are learning to use other visual cues to get your depth perception back. It is the same process that occurs when a person loses an eye.

Your AME must keep the corrective lenses limitation on your medical for the six-month period. Then you may apply for a SODA (Statement of Demonstrated Ability) with a medical flight test. If you pass, the lens requirement on your medical can be removed.

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Sleep Apnea

Case Study, by Lt. Col. Mustafa Alan, MD

Abstract. *Sleep apnea is a serious, potentially life-threatening condition that contributes to a significant number of automobile deaths and other major accidents each year in the US. An estimated 18 million Americans suffer from sleep apnea. It is important for aviation medical examiners to be aware of its implications, which include the potential for sudden incapacitation during flight.*

Case

A 65-YEAR-OLD, black male (height 70 in., weight 215 lbs.), with 800 hours of total pilot time applied for a renewal of his third-class FAA airman medical certificate on 6/15/99. On examination, he was found to have arthritis, high blood pressure, congestive heart failure, and sleep apnea. Medications included prednisone (3 mg per day) for arthritis, Lanoxin (0.25 mg per day) and Lotensin (10 mg per day) for a heart problem and hypertension. His near and distant vision were 20/20 with correctional lenses. Hearing in the right ear was normal, but the left ear was deaf. The other findings were normal.

The pilot's sleep apnea problem began 7 years ago. His complaints were as follows: loud snoring during sleep, leg cramps, dyspepsia, and awakening from sleep. On 11/9/98, an attended overnight sleep study was done to determine the sleep apnea severity. The study was performed with continuous monitoring of the EEG (2 channels) and EOG (2 channels), facial EMG (with nasal air flow measured by thermistor), respiratory efforts utilizing thoracic and abdominal strain gauges, and arterial oxyhemoglobin saturation measured by oximetry. Leg EMG were included in this montage. Sleep is judged by EEG, EOG, and EMG criteria. The results are shown in Table 1.

	1st Study 11/9/98	2nd Study 1/19/99
Total Sleep Time	276 min	357 min
Stage 1	42%	13%
Stage 2	15%	33%
Stage 3	6.8%	14%
Stage 4	7.8%	15%
REM Sleep	6.1% (22 min)	19% (36 min)
Wakefulness	22%	6.5%
Sleep Latency Period	3 min	40 min
Apnea Episodes	91	1
Hypopnea Episodes	146	37
Snoring	Yes	No
Sleep Efficiency	74%	86%
Heart Rate	66-70	56
Oxygen Saturation	95 to 80% m:>90	97 to 95
Leg Movement Index	15.2	7.3

Table 1: Patient's Sleep Studies

The results of the first study indicated that the patient had severe, obstructive apnea, and hypopnea syndrome. His sleep efficiency was poor, and his sleep latency period was too long. Sleep hygiene was prescribed with nasal continuous positive airway pressure (CPAP).

The sleep study was repeated about 2 months later (1/19/99) at the same hospital. The results of this second study showed that the patient's sleep efficiency improved to 86% and REM sleep to 19%; total sleep time was 357 minutes, Stage 1 was 13 minutes, and REM sleep was 36 minutes. The patient appeared to have the best response at 8 cm of CPAP pressure where the minimum numbers at apnea/hypopnea were noted. The patient had only 1 obstructive apnea event and 37 episodes of hypopnea. No snoring was observed.

Sleep Apnea

The Greek word "apnea," or "apnoea," literally means "without breath." It is defined as a blockage of airflow for more than 10 seconds. There are two main types of sleep apnea: Obstructive sleep apnea (OSA) and central sleep apnea (CSA). Some persons have a combination called mixed sleep apnea. The OSA syndrome, first described by Gastaut in 1966, is the most common form of apnea and is caused by a blockage of the airway. Central sleep apnea occurs when the brain fails to send the appropriate signals to the breathing muscles to initiate respiration. Sleep apnea is extremely common and affects more than 12 million Americans, according to the National Institutes of Health. Sleep apnea occurs in all age groups and both genders, but

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it is most common in males and African-Americans. Four percent of all middle-aged men and two percent of middle-aged women have sleep apnea, along with excessive daytime sleepiness (EDS). As people age, they commonly gain more weight, which causes the upper airway tissues to sag and become more collapsible. For these reasons, OSA is more common in older individuals.

Certain mechanical and structural problems in the airway cause the interruptions in breathing during sleep. The sleepiness and the lower oxygen levels can have serious adverse consequences on daily life activities, including driving and job performance. Aside from low oxygen levels and daytime sleepiness, people with OSA may wake up frequently feeling as if they are suffocating. This sends a big jolt of adrenaline through the body, causing the blood pressure to suddenly increase and the heart to race.

One of the most obvious indicators of sleep apnea is extremely loud, heavy snoring, often interrupted by gasps and long pauses in breathing. People with sleep apnea often feel very sleepy during the day and need frequent naps. The consequences of sleep apnea range from annoying to life-threatening: depression, irritability, sexual dysfunction, learning and memory difficulties, falling asleep inappropriately, hypertension (in as many as 50 percent), and other cardiovascular consequences

Other symptoms may include: irregular heartbeat during sleep, frequent accidents, changes in mood or behavior, frequent wakening, need to urinate during sleep, gastro-esophageal reflux, sweating, chest and limb pain, dry mouth in the morning, and morning headache.

Risk Factors

- Being male and overweight
- Nasal obstruction; tonsilar and adenoidal hypertrophy
- Hypertension. Recent studies (Peppard, Paul E. et al. and Nieto, Javier F. et al.) show that there is a close relation between OSA and hypertension
- Alcohol. Acute alcohol ingestion promotes apnea in later sleep
- Cranio-facial abnormalities (due to macroglossia or micrognathia)
- Endocrine and metabolic diseases such as hypothyroidism, Cushing's Disease
- Neuromotor disorders, e.g., cerebral palsy, head injury, polio, myotonic dystrophy
- Connective tissue disorders, e.g., Marfan's syndrome
- Storage diseases such as Hurler's syndrome, Hunter's syndrome (because of macroglossia)
- Chronic renal failure
- Familial

Diagnosis

For many sleep apnea patients, their spouses are the first ones to suspect that something is wrong, usually because of the patient's heavy snoring and apparent struggle to breathe. Coworkers or friends may notice that the individual falls asleep during the day at inappropriate times. Several tests are available for evaluating a person for sleep apnea. These are two tests that are commonly used both to diagnose sleep disorders and to determine its severity:

1. **Polysomnography.** Records important body functions during sleep: electrical activity of the brain, eye movement, muscle activity, heart rate, respiratory effort, air flow, and blood oxygen levels.

2. **Multiple Sleep Latency Test.** Measures the speed of falling asleep. People without sleep problems usually take 10 to 20 minutes to fall asleep. Individuals who fall asleep in less than 5 minutes are likely to require treatment for sleep disorders. This test shows the quality and deepness of sleep, as well as the frequency of wake ups.

Treatment

Treatment options will vary depending on how severe the sleep disorder is. Untreated, sleep apnea may be responsible for job impairment and motor vehicle accidents. At least 4% of crashes may be caused by drowsy drivers, based on estimates by the National Highway Transportation Safety Administration.

Medications are generally not effective in the treatment of sleep apnea. A variety of anti-snoring, apnea prevention devices can be found in such over-the-counter products as SnorBan, Noiselezz, Snore-No-More, Snorless, etc. But it cannot be estimated if any one of them can be helpful, since individuals have different forms of airway and facial structure.

Behavioral changes are an important part of the treatment program, and in mild cases, behavioral therapy may be all that is needed. One should avoid the use of alcohol, tobacco, and sleeping pills, which make the airway more likely to collapse during sleep and prolong the apneic periods. Overweight persons can benefit from losing weight. Even a 10% weight loss can reduce the number of apneic events for most patients. In some patients with mild sleep apnea, using pillows and other devices that help them sleep in a side position is often helpful.

CPAP. Nasal continuous positive airway pressure is the most common, effective treatment for sleep apnea. There are machines that also provide patients with more air called BiPAP and auto-CPAP.

Tips and Remedies for Sleep Apnea

- Snoring does not necessarily equate to sleep apnea.
- Seek treatment if sleep disorder is suspected.
- Seek treatment if a snorer and hypertensive (especially if over 40 and obese)
- Avoid alcohol and sleeping pills — they make apneas and hypopneas worse.
- Stop smoking.
- Lose weight (not everyone with OSA is overweight).
- Go to bed and wake up at the same times every day of the week.
- Do not drive, fly, or perform tasks that require close attention when sleepy.
- Try different sleeping positions (positional therapy).

Continued on page 11...

Physiological Training for Pilots

You're Not Tired, Are You?

Eric Simson

IT'S ABOUT 8 PM, YOU'VE completed the aircraft inspection and pre-flight checklist, finding no problems. The flight plan has been filed, and a check of the weather shows clear skies to your destination, two hours away. Your qualifications are current and you consider yourself a better-than-average pilot.

Life couldn't be better—but are you *really* ready for that flight? How well you will be able to perform could come down to whether you are able to stay alert and awake. A dangerous situation, fatigue, could ruin your perfect day.

Your body is a "well-oiled machine" and, like most machines, works on a cycle. The cycle, in the case of the human body, is the circadian rhythm, also referred to as the "biological clock." It is a 25-hour period in which the body goes from a state of rest, through activity, and returns to rest. As we are in a 24-hour world, this usually does not present a problem. So long as we are working within the body's activity schedule, this type of fatigue is less likely to be a problem. Unfortunately, when we work outside the "normal" series of daily events, such as late at night or where time zones are crossed which detract from the hours in our day, circadian fatigue can, and often does, pose a serious hazard.

In the average circadian cycle, we come from our deepest state of rest, at about 4 to 6 AM, and gradually increase to a peak of alertness around 4 to 6 PM. From there we begin a slow energy decrease until 10 to 11 PM, where we experience a significant plunge, returning to the deep sleep realm at about 1 to 2 AM. The times indicated here are approximate. As individuals, our capabilities will vary depending on whether we are "early birds" or "night owls." Those who naturally rise early tend to go to sleep early, and just the opposite is true for those who wake later.

Additionally, we experience acute and chronic fatigue. Acute fatigue is experienced as we actively perform tasks requiring muscle and mental activity. Chronic fatigue is accumulated fatigue as the result of time involved with various activities, even if they are not of a strenuous nature.

These three types of fatigue do not act independently on an individual. Instead, they act synergistically. That is, they compound one upon another and "add up." This effect can cause you to feel "good to go" as you start a late evening event, only to find yourself becoming tired and unable to concentrate after a short while. The results are loss of situational awareness, task/target fixation, and complacency. In an aircraft, these could add up to a mishap.

Getting back to the 8 PM flight we started at the beginning, let's look at things you might do and how they could affect your ability to resist fatigue. As happened to a military pilot, who had a fatality mishap in a tactical jet aircraft, you could choose to wake as usual and try to cram a lot of activities into your day before the flight. In his case, he woke at about 5 AM, went for a run, did some weight lifting, and spent the day catching up on some yard work. This type of schedule, prior to a late flight, would result in acute fatigue from physical exertion, accumulated fatigue from being awake for a long time, and circadian fatigue as normal bedtime approaches. As you can well imagine, this situation, along with other factors, created a significant disadvantage in this pilot's ability to combat fatigue. The same factors have caused countless instances of controlled flight into terrain, near mid-airs, and mid-air collisions.

What could we do to improve upon this scenario? For starters, you could get up a little later. Essentially, what you would be doing is reversing some of the sleep debt that may have accumulated up to that time. Light, heat, sounds, and smells help to set your biological clock naturally and would wake you up closer to your normal time, so you'll have to shield yourself from those things in order to sleep later. Second, it's important not to overly exert yourself during the course of the day prior to a late flight. Taking care of

Mr. Simson is an aviation physiology instructor at the Civil Aeromedical Institute's Aeromedical Education Division (see related story).

Continued ➤

some paperwork that has been piling up might be a better, and less physically demanding, activity. Additionally, a nap a few hours prior to the event can be a real "pick-me-up" that could result in a little energy boost. By napping, you would be well rested— not exhausted —and prepared for the effects of circadian fatigue.

What you eat is also important. Eating a candy bar or drinking something having high sugar/high caffeine properties will only provide a short-term fix. The sugar will burn off quickly, resulting in a rapid lack of energy, and too much caffeine can cause dehydration and irritability. Food that is high in protein, such as peanuts, will provide energy for a longer period of time, without the rapid "energy crash" associated with the metabolism of sugars.

I'm sure there are some skeptics out there who believe they can be just as alert late at night as they are during the day and that coffee and candy will keep you awake. I was one myself when I was provided this information in a night vision goggle course, so I tested the theory. Starting out on a road trip at 3 AM, after five hours of sleep, I drank about three to four cups of coffee between 4 and 6 AM, eating a piece of hard candy every five minutes as I began to nod off. Thankfully, the sun came up then and woke my biological alarm clock. On the return, I started at the same time, with the same amount of sleep, and drank one to two cups of coffee between 4 and 6 AM, eating a handful of peanuts every 30-45 minutes to stay awake. And, I wasn't nearly so drained of energy when the sun came up as I had been on the previous trip.

Recently, the use of melatonin has been promoted, through the media, as a way to assist with circadian fatigue and jet lag. While studies have demonstrated some benefit from its use, they have also indicated drawbacks from the sedative and hypnotic effects. Additionally, melatonin ingested at the incorrect time may further desynchronize an already troubled circadian rhythm through the addition of another cue.

Therefore, it is cautioned that melatonin should not be taken within 24 hours of flying, and professional guidance should be sought in the proper use of this neurohormone to achieve maximum benefit without adverse reaction. (Sanders DC, Chaturvedi AK, Hordinsky JR (1998). Aeromedical Aspects of Melatonin—An Overview. Washington DC: DOT/FAA/AM-98/10)

Fatigue can be a factor when flying late, but it doesn't have to be. The choice is strictly up to you: Prepare for the flight ahead of time and be ready to combat fatigue. And, if you feel fatigued **before** you fly…don't.

Eric Simson is pictured with CAMI's new virtual reality spatial disorientation simulator (VRSDD).

About the Author

Eric Simson, a 20-year veteran of US Naval Aviation, recently joined the FAA Office of Aviation Medicine's Aeromedical Education staff as an aviation physiology instructor. His most recent assignment with the Navy was as an Aeromedical Safety Officer at the US Marine Air Station in Yuma, Ariz., where he instructed Marine Harrier pilots in night vision devices and combat survival techniques. Simson instructed aircrew in a number of aeromedical physiology topics: hypobaric chamber, spatial disorientation, oxygen systems, ejection seats, parachutes, life support equipment, swimming, life rafts, rescue devices, signaling devices, and helicopter emergency egress. By joining a staff of five physiology instructors—all former USAF trainers—Simson has the distinction of being the first non-Air Force instructor ever hired at CAMI. He is married; he and his wife have five children and "one on the way."

AME Directory Now Available at CAMI Web Site

The consolidated and regional directory of aviation medical examiners (AMEs) is now available on the Civil Aeromedical Institute website. To access the directories, direct your browser to <www.cami.jccbi.gov>; select "Aeromedical Education" and then select "Directory of Aviation Medical Examiners." Below the table providing search tools to locate AMEs, there are links to the Consolidated and Regional Directories of AMEs.

Using Adobe Acrobat™, you can view or print the directories, or even perform simple searches for individual AMEs by city, county, or state.

If you need assistance accessing or downloading any of the files, please call:

David Nelms
Aeromedical Education Division
(405) 954-4834

SHARE

This Information With
Your Staff and Patients

A Pilot With a Rhegmatogenous Retinal Detachment

Case Study, by Charles W. Sweeney, MD

A 58-YEAR-OLD PILOT with a class-2 commercial rating and 3600 hours suffered a rhegmatogenous retinal detachment of his left eye on 7/29/99. The pilot underwent pneumatic retinopexy laser repair the same day. His vision returned to 20/20, corrected. Subsequent physical exams have shown that his retina continues to be attached 360 degrees. The pilot's ophthalmologist plans to reevaluate him every six months to determine the stability of the vision and retina. After the review process, the medical certificate was issued to this pilot with instructions to notify his aviation medical examiner should new symptoms occur.

The major factors associated with the development of a retinal detachment include retinal breaks, vitreous liquefaction and detachment, traction on the retina, and intraocular fluid currents associated with movement of liquid vitreous and subretinal fluid (1).

Retinal detachments have an annual incidence in the general population of 1:10,000 (2). There are, however, a variety of associated ocular and systemic disease states that increase the chances of retinal detachment. These include: diabetes, high myopia, pseudophakia and aphakia, blunt and penetrating ocular trauma, and cytomegalovirus retinitis associated with aquired immunodeficency syndrome.

Forty percent of eyes with retinal detachment have had prior cataract surgery (3). High myopia (>6.0D myopia) is associated with a threefold increase in the incidence of retinal detachment (4). Severe ocular trauma is thought to be responsible for 10 to 15 percent of the retinal detachments, and up to 50 percent of CMV patients develop a rhegmatogenous retinal detachment within one year (5). Risk factors can be additive. Patients who have had a retinal detachment in one eye are at a significantly greater risk for having a retinal detachment in the other eye provided the acquired risk factors are similar.

The early symptoms of acute retinal detachment are tiny dark floating objects and flashes. The flashes tend to be located in the temporal visual field and are usually brief. Loss of visual field does not happen until sufficient fluid has passed through the retinal break. Retinal detachments with a relatively small amount of subretinal fluid often are not accompanied by visual field loss, and these are called subclinical detachments (1).

The diagnosis of rhegmatogenous retinal detachment is made by clinical diagnosis. If the retina can be visualized well, the detached areas are characterized by elevation of the neural retina from the retinal pigment epithelium and loss of pigment epithelial and choroidal detail beneath the elevated retina. In circumstances where the ocular medium is opaque, ultrasound can be used to make the evaluation (1).

Treatment consists of controlling the factors that led to the detachment and to reestablish the conditions that normally maintain contact between the neural retina and pigment epithelium. The main goal of surgery is to close the retinal break. Long-term closure of retinal breaks may require permanent reduction or elimination of vitreoretinal traction and techniques to offset the harmful effects of fluid currents in the vitreous cavity (1).

Outcome after rhegmatogenous retinal detachment has improved significantly. About 70 years ago, this was an incurable disease that led to complete blindness. Today, surgical success rates, defined by normal anatomic position and no residual subretinal fluid, approach 95 percent. Restoring postoperative visual acuity is not necessarily as successful and depends upon the extent of damage to the macula caused by the retinal detachment. If the macula is detached by subretinal fluid, some amount of permanent vision impairment occurs despite surgical repair. In patients where no macula detachments occurs, 85 percent can expect at least 20/40 vision (6). In eyes with macular detachment, only 50 percent will have 20/40 vision or better. In those with preoperative vision less than 20/200, fewer than 15 percent will have 20/50 or better (7).

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Dr. Sweeney was a resident at the Civil Aeromedical Institute when he wrote this article.

Sleep Apnea *(from page 8)*

Surgery. Some of the more common procedures include removal of adenoids and tonsils (especially in children), nasal polyps or other growths, or other tissue in the airway and correction of structural deformities. Uvulopalatopharyngoplasty is a procedure used to remove excess tissue at the back of the throat (tonsils, uvula, and part of the soft palate). The success of this technique may range from 30 to 50%. Laser-assisted uvulopalatoplasty is done to eliminate snoring but has not been shown to be effective in treating sleep apnea. Tracheostomy is used in persons with severe, life-threatening sleep apnea. Patients in whom sleep apnea is due to deformities of the lower jaw may benefit from surgical reconstruction. Finally, surgical procedures to treat obesity (liposuction) are sometimes recommended for sleep apnea patients who are morbidly obese.

Discussion

Our case findings and complaints were in accordance with the literature. The applicant was over 40, male, African-American, and relatively obese. In this case, the patient responded quite well to the CPAP therapy and sleep hygiene therapy. As shown in Table 1, after the treatment, his sleep efficiency, REM period, and oxygen saturation levels increased, and the unwanted effects of sleep apnea decreased dramatically.

Outcome

Although his sleep apnea is controlled, the applicant was deferred to the Aeromedical Certification Division because of his cardiac condition. As of August 2000, his medical certification application is still pending because he did not provide enough information about his cardiac evaluation. The Aeromedical Certification Division requested the applicant to provide a current cardiac status report. When he provides this information, and if he meets cardiologic standards, he will be certified.

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Letter to the Editor
On Alcohol Abuse Regulations

Dear Editor:

Timeout! What makes a person labeled alcoholic, a doctors opinion? In regulation 61.15 it says that you can have up to two MVA's within a three year period and that your certificate may be suspended for 120 days. Well, would we classify this person as alcoholic?

I recently decided that I needed to stop drinking and I am in a doctor's care. I have never had a DUI or DWI nor [have I] been convicted of any crime. I told the FAA that I was now under a doctor's care and they said that they would give me a year to show that I could remain abstinent from alcohol.

My point is that there are many alcoholics that are pilots that do not get help and the pilots that do get help are punished.

(Name withheld)

P.S. I also want to know how these medical regulations become enacted and by who?

Dear Airman,

You have asked several questions, which I will answer in the order you asked:

1. The Federal Aviation Regulations (14 CFR 67.107, 67.207, and 67.307) define substance dependence as

a. Increased tolerance to the substance (meaning it takes more of the substance to get the same effect);

b. Manifestation of withdrawal symptoms (when the substance is not used for a period of time);

c. Impaired control of use (failure or inability to stop using the substance when use is no longer appropriate); or

d. Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

Anyone meeting one or more of these criteria is considered substance dependent for aeromedical purposes.

2. FAR 61.15 does not classify anyone as an alcoholic. It simply provides a basis for withholding or suspending a pilot certificate if the specified events occur. Studies have shown that about 60% of individuals who have two DUIs are alcoholic and that raises a concern, but the fact that a person has two DUIs does not necessarily make the diagnosis.

3. Not knowing the particulars of your case, I am going to guess that the doctor's reports that you forwarded to us either diagnosed you as being dependent on alcohol or at least indicated that you met one or more of the above criteria. By regulation, then, you are considered to be substance dependent and require at least two years of abstinence to be eligible for medical certification under the standards. Our current practice is to consider granting a special issuance certificate (waiver) after 1 year of demonstrated abstinence and recovery.

4. Please understand that the Federal Aviation Regulations are primarily for the protection of the public and secondarily for the protection of the flyers. Just because there may be potentially unqualified but as yet unidentified pilots currently flying, it does not follow that we should ignore those who are identified. The current medical regulations regarding alcoholism became effective Sept. 19, 1996. They were implemented by the FAA after public review and comment.

5. Our intent is not to "punish" pilots who are diagnosed with disqualifying medical conditions. If a pilot fails his IFR checkride, we don't consider it "punishment" when we withhold the instrument rating. We simply expect the airman to practice more and to try again later. In the same vein, if an individual fails the medical evaluation, that person is not "punished" by withholding the medical certificate. We expect the airman to get the appropriate treatment, and when it is shown that he or she is once again safe to fly, certification is granted.

We applaud your honesty (which is actually required by law) in reporting your medical condition. You are getting the appropriate care for your condition, and when you return to flying, you are likely to have many more years of flight ahead than if the condition had gone untreated.

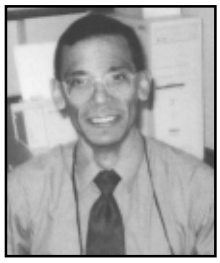
Steve Carpenter, MD
Medical Appeals Branch

Office of Aviation Medicine *NEWS*

New Flight Surgeon Joins Miami MFO

By David P. Millett, MD

Edwin A. Murdock, MD, MPH, recently assumed the position of Flight Surgeon at the Miami (Fla.) Medical Field Office. He retired last year from the US Army as a colonel.



Born and raised in the US Canal Zone, Panama, Murdock graduated from the US Military Academy at West Point. Before attending the uniformed Services University of Health Sciences in Bethesda, Md., he was a platoon leader in Air Defense Artillery in Korea and Washington State.

After graduating with his Doctor of Medicine degree and completing an internship, he became a US Army flight surgeon and served in Korea, Georgia, and Alabama. Murdock then completed a residency in Aerospace Medicine at the USAF School of Aerospace Medicine and obtained a Master of Public Health degree from Johns Hopkins University. His military assignments included Chief, Aeromedical Education Division and Safety Center at Fort Rucker, Ala.

Murdock retired from the US Army after a distinguished career. He was awarded the Army Legion of Merit, Army Meritorious Service Medal with three oak leaf clusters, and numerous other awards and honors. He is the author of many professional articles and presentations. In 1992, he received his Specialty Board Certification from the American Board of Preventive Medicine (Aerospace Medicine).

Along with his two Chihuahuas, Murdock is enjoying the South Florida atmosphere and climate.

Dr. Millett is the Southern Regional Flight Surgeon.

CAMI Supports Aviation Safety Efforts

By Mike Wayda

Thanks to the proactive efforts of a group of traveling instructors from the Civil Aeromedical Institute, US general aviation pilots are learning to avoid the deadly effects of spatial disorientation and visual illusions. Pilots are also learning skills to help them survive being downed far from civilization. And those fortunate enough to live in the right place do not have to travel far to learn important information that can keep them flying safely. Instructors from the Institute's Aeromedical Education Division in Oklahoma City support the Federal Aviation Administration's safety and proficiency training programs for pilots at many locations across the country.

Airshows

During the first nine months of the year, six instructors have taken the Institute's spatial disorientation simulators to several major US airshows, including the Experimental Aircraft Association's Sun 'n Fun in Orlando, Fla., and AirVenture 2000 in Oshkosh, Wis. The disorientation simulators (GYROs and the VRSDD) are portable spatial disorientation devices that are used to provide a practical, highly convincing demonstration of the human limitations to maintain spatial orientation during IFR conditions, as well as to underscore the importance of relying on cockpit instrumentation to fly safely under these conditions.

Wings Weekend Seminar. CAMI's Jim Spanyers is pictured with Arlene Feldman, FAA Eastern Region Administrator.

Wings

Another agency program supported is the general aviation Wings Program, in which pilots attend proficiency seminars to hone their knowledge of current safety information. At one such seminar, the annual Wings Weekend Fly-In at Mattoon, Ill., about half of the 275 pilots who attended the fly-in completed a flight in the GYRO. In addition, 16 safety seminars were conducted, and 200 pilots were awarded Pilot Proficiency Wings and certificates.

Former astronaut James Lovell (center) discusses his flight in the GYRO-2 at Matoon, Ill., with Rogers Shaw (left) and Roger Storey, aviation physiology instructors from CAMI's Aeromedical Education Division.

Continued ➤

CAMI Instructors (continued)

Survival Seminars

Six survival seminars were presented this year by CAMI instructors. These courses teach pilots basic and advanced survival skills that will save lives if they are ever forced down. At one such seminar, sponsored by the Philadelphia, Pa., FAA Flight Standards District Office, instructor **Jim Spanyers** presented the course to approximately 300 pilots. Subjects included post-crash survival procedures, injury assessment, aircraft damage assessment, survival equipment inventory, priorities of survival, location of survival equipment and gear in the aircraft, operation and use of equipment conducive to varying terrain, climates, emergency locator transmitters, flares, aircraft ditching, rafts and accessories, and water survival. Three participants flew in from the Chicago, Ill., area and one from Canada.

At Home

On their home turf during the week, Aeromedical Education instructors teach a one-day course to general aviation pilots on the physiological aspects of safe flight. The course covers aviation oxygen, hypoxia, spatial disorientation, survival, and provides a flight to 25,000 feet (AGL) in the hypobaric chamber. About 48 classes are held each year in Oklahoma City for approximately 750 pilots. Also, a one-day survival course is conducted for pilots; about 15 such courses are offered each year. The instructors also provide all FAA pilots and some foreign nationals with recurrent survival training.

Whether at home or on the road, the purpose of physiological training is to prepare pilots to cope with the dangers inherent in the aviation environment.

For information about physiological training courses, please contact:

Airman Education Program
(405) 954-4837

Aircraft Accident Investigation Training.

A two-week course was recently conducted at CAMI in aeromedical aspects of accident investigation for a group of 20 Chinese officials that included **Wu An Shan**, Director of the Accident Investigation Division, Civil Aviation Administration of China (1st row, between Aeromedical Education Manager Dr. **Melchor Antuñano**, right, and CAMI Director Dr. **William E. Collins**). The Course was organized and led by CAMI Accident Research Team members Drs. **Stephen Véronneau**, **Alex Wolbrink** (3rd row, 2nd & 3rd from left), **Charles DeJohn** (back row, 2nd from right), and Dr. Antuñano. Other instructors were Drs. **Charles Ruehle** (Office of Aviation Medicine), **Guillermo Salazar** (Southwest Regional Flight Surgeon), and four CAMI scientists (Drs. **Arvind Chaturvedi**, **Van Nakagawara**, **Scott Shappell**, and **James Whinnery**), as well as representatives of the FAA Office of System Safety, the National Transportation Safety Board, the Transportation Safety Institute, and Delta Airlines. The banner was brought from China and hung in CAMI's auditorium during the course.

CAMI Health Division Manager Selected

E.Y. Mathike, MD

Edward Y. Matheke, MD, is the new manager of CAMI's Occupational Health Division. He replaces Dr. **Ronald W. Hansrote**, who retired in June.

Matheke's background is in emergency medical services, occupational and preventive health, and aviation and ambulatory medicine—much of which was gained in the military. He is a colonel in the Oklahoma Army National Guard active reserve, where his title is State Surgeon. Most recently, he managed the Veteran's Administration Outpatient Clinic in Lawton, Okla.

A diplomate of the American Board of Emergency Medicine, Matheke takes a strong clinical background to his new position, having practiced at federal and military hospitals.

Matheke earned his medical degree from the Medical College of Ohio at Toledo, and he completed a postgraduate military internship at the Brooke Army Medical Center in Houston, Texas.

Born in Tokyo, Japan, Matheke grew up in Ohio and received his education there. He and wife, **Karen**, live in Lawton, Okla.; their daughter, **Heather**, attends Okla. State University.

In Dieting, You Can't Fool Mother Nature

by Glenn R. Stoutt, Jr., MD, Senior FAA Aviation Medical Examiner

ALL PILOTS ACCEPT AS FACT the four forces limiting operation of an aircraft: thrust, lift, drag, and gravity. The same for the "envelope" and near-absolutes in the operations manual such as stall speed, never-exceed speed, fuel consumption, rate of climb, maximum weight, and so on that are specific for each aircraft.

These figures have been carefully determined by testing. Each obeys the laws of physics, which cannot be changed. There are no loopholes. (The absolute-of-absolutes law is the speed of light, which is 186,282.3976 miles per second—our best measurement.)

Unfortunately, when it comes to dieting many pilots resort to "magical thinking" and ignore the laws of thermodynamics that govern the way our bodies burn fuel. Fuel taken in (food) is either burned or stored according to our individual set-point metabolic rate and how much we exercise. (Einstein's famous equation is the oversimplified $E=MC^{2)}$. A simple formula for weight maintenance would be energy in should equal energy burned.

The answer to weight control can be broken down into: diet plus exercise. The reason a third of us in the United States remain obese is that dieting (and maintaining proper eating habits) takes so many weeks or months of self-discipline that we are willing to believe just about anything from outrageous magazine articles to junk-science best-selling books.

Hordes of frustrated dieters — probably millions—are desperately seeking a quick fix. The current diet craze comes from four or five pop books on dieting. Although the food manipulations in the books have been highly criticized by all the major health organizations, they are best sellers and millions are following their advice. Why? The main reason is that the diets work; people do lose weight—lots of it, but mostly water and muscle in the first few weeks. A careful analysis shows that each and every diet is actually low-calorie. Here are the major ones and the reasons they are not only based on false premises but also are dangerous if followed for a long period of time.

High fat /High protein: Some plans recommend up to 40-60 percent fat (cream, butter, bacon, cheese, pork, etc.) and very low carbohydrates—"ham, eggs, bacon, and butter for breakfast; hold the toast." A high-fat diet will surely work at first because it is filling and produces ketosis, which causes decreased appetite —and foul breath. Someone with ketosis is already somewhat sick. A high fat intake eventually wreaks havoc with your cholesterol and triglycerides. The diet books boast of a reduction in cholesterol. This is probably a result of weight loss, not gorging on fat.

High protein: Excess protein puts a heavy load on the liver and kidneys. It also causes excessive excretion of calcium , which may later result in osteoporosis. Many proteins are also high in fat (beef, pork). Also, not to be ignored is the high price of protein, making it difficult for low-income people to follow. ("Let them eat filet mignon.") There is more obesity in poor people than in the affluent.

Low carbohydrate (the "sugar bashers"): The premise of this diet is that sugar, not fat, is the villain in obesity. It is based on the glycemic index (long abandoned by the American Diabetic Society as not a practical consideration). This index is a measure (compared with pure glucose) of how fast a food is absorbed as sugar (glucose) into the blood. Examples of foods with a high glycemic index are sugar, white bread, pasta, carrots, potatoes, bananas, corn, and rice.(A surge of glucose into the blood—such as by eating jelly donuts, orange juice, and toast and jelly for breakfast—does cause a release of insulin that jolts the blood sugar to much lower levels, often causing jitteriness or headache.) However, the glycemic index is no longer thought of as a "breakthrough" in dieting. High glycemic foods have practically no effect if combined with proteins, complex carbohydrates, and fats—from a normal diet.

But, since part of the effect of insulin is to store food as fat, the false conclusion was made that the cause of obesity is development of insulin-resistance by too much sugar (and simple carbohydrates) in the diet. The truth is just the opposite: Obesity causes resistance to insulin. Even protein causes production of insulin. Huge meals really cause a spike of insulin. The solution is to eat smaller meals, maybe five or six a day instead of three. A really bad plan is to eat no breakfast, have a light lunch, and gorge on dinner.

So…what is the best way to diet permanently and safely?

Here is something you can believe in:

Since 1985, every five years a federal advisory committee composed of widely recognized experts in nutrition, medicine, and epidemiology has been invited to review the Dietary Guidelines for Americans. The guidelines for the year 2000 may be thought of as The Ten Commandments of a Healthful Lifestyle, grouped under an ABC scheme.

Continued ☞

Dr. Stoutt is a partner in the Springs Pediatrics and Aviation Medicine Clinic, Louisville, Ky., and he has been an active AME since 1960. No longer an active pilot, he once held a commercial pilot's license with instrument, multi-engine, and CFI ratings.

"Ten Commandments" of a Healthful Lifestyle

A AIM FOR FITNESS
AIM FOR A HEALTHY WEIGHT (Easy. Just undress and look at yourself. How do your clothes fit?)

B BE PHYSICALLY ACTIVE EACH DAY. (At least 30 minutes of moderate exercise three or four times weekly as a minimum. Try for 30-45 minutes most days. Do at least 10-15 minutes of weight or strength training three times a week.)
BUILD A HEALTHY BASE Let the Pyramid—the core of all nutritional advice—guide your food choices (This is the only major revision from 1995.)

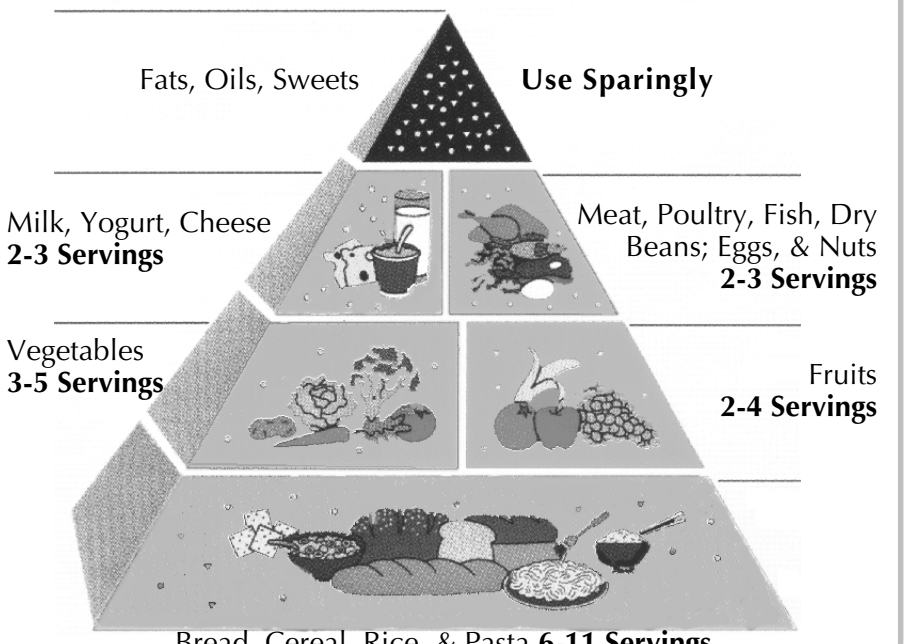
C CHOOSE SENSIBLY
Choose a variety of grains daily; especially whole grains.
Choose a variety of fruits and vegetables daily.
Choose a diet that is low in saturated fat (less than 10 percent) and cholesterol and moderate in total fat (less than 30 percent).
Choose beverages and foods to moderate your intake of sugars.
Choose and prepare foods with less salt.

Here are three common-sense principles also to consider:

- Keep food safe to eat (FDA is thinking about E. coli and salmonella especially)
- If you drink alcoholic beverages, do so in moderation
- (Smoking, the leading cause of preventable death, is not included, as it is not a dietary item. But, if you smoke, all bets are off. Quit.)

So simple. No $25 books. No hype. No incorrect pseudo-science or quackery. Most of the information has not been essentially changed since 1980. The guidelines are the cornerstone of federal nutrition policy and come from the Center for Nutrition Policy and Promotion, US Department of Agriculture, May 30, 2000. They reflect sound advice from a consensus of the most current science and medical knowledge available.

The Food Pyramid: Guide to Food Variety



('Servings' indicate daily helpings)

You must eat a variety of foods in a balanced diet that includes all food groups to ensure that you are getting enough phytochemicals (plant chemicals), vitamins, fiber, and minerals in addition to the recommended amounts of carbohydrate (50-60 percent), fat (no more than 30 percent), and protein (about 15 percent.)

Even if you have been on one of the unscientific and unsafe diets for a few months and have lost weight, now is the time to try this foolproof eating plan. Limit your meals to these food choices only until you have attained your optimal weight. The cornerstone of any lifelong eating plan should be fresh fruit and vegetables and lots of fiber. Also, skim milk; skinless chicken and turkey; fish; fat-free margarine, yogurt, mayonnaise, and cottage cheese; whole-grain cereals and bread. Load up on deeply-colored vegetables such as spinach, kale, carrots, squash, tomatoes, peppers, and sweet potatoes. Legumes (beans, peas, and some nuts) are great—try to include them in daily meals.

Stay on this reasonable, safe, healthful meal plan for a few months and then add a few other things after you have made a big dent in your weight. For the first few months, avoid anything sweet or fat. A little olive oil on salad is OK, just not a bottle full. You can occasionally have any calorie-laden food you wish, but you must cut down on the rest of your calories to make up for it. Then follow the Food Guide Pyramid's proportions to meet your caloric needs.

Remember: To lose a pound of fat, you must burn 3500 calories. This means that if you take in 500 fewer calories per day for a week you will lose a pound of fat. Rapid-loss diets cause you to lose muscle and water. You don't have to diet for life, just make proper food choices for life…and exercise.

Yours for good health and safe flying,

Glenn Stoutt

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Note: The views and recommendations made in this article are those of the author and not necessarily those of the Federal Aviation Administration.

AME TRAINING

Aviation Medical Examiner Seminar Schedule

2000

October 27-29 -------- Kansas City, Mo. ---------- CAR (2)
December 4-8 --------- Oklahoma City, Okla. ---------- Basic (1)

2001

January 12-14 --------- San Diego, Calif. ---------- N/NP/P (2)
February 23-25 -------- Houston, Texas ---------- AP/HF (2)
March 19-23 ---------- Oklahoma City, Okla. ---------- Basic (1)
April 20-22 ---------- McLean, Va. ---------- OOE (2)
May 7-10 ---------- Reno, Nev. ---------- AP/HF (3)
June 11-15 ---------- Oklahoma City, Okla. ---------- Basic (1)
July 20-22 ---------- Atlanta, Ga. ---------- N/NP/P (2)
August 24-26 ---------- Salt Lake City, Utah ---------- CAR (2)
September 10-14 ------ Oklahoma City, Okla. ---------- Basic (1)

CODES

AP/HF --- Aviation Physiology/Human Factors Theme

CAR ------ Cardiology Theme

OOE ----- Ophthalmology - Otolaryngology - Endocrinology Theme

N/NP/P -- Neurology/Neuro-Psychology/Psychiatry Theme

(1) A 4½-day basic AME seminar focused on preparing physicians to be designated as aviation medical examiners. Call your regional flight surgeon.

(2) A 2½-day theme AME seminar consisting of 12 hours of aviation medical examiner-specific subjects plus 8 hours of subjects related to a designated theme. Registration must be made through the Oklahoma City AME Programs Branch, (405) 954-4830, or -4258.

(3) A 3½-day theme AME seminar held in conjunction with the Aerospace Medical Association (AsMA). Registration must be made through AsMA at (703) 739-2240.

The Civil Aeromedical Institute is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians.

Meeting Calendar

International Events of Interest for 2000

Oct. 18-21, Morelia Michoacan, Mexico.
Sponsored by the Mexican Association of Aviation Medicine an the Aeronautical Training Center "Alas de America." Info: AMMA; Phone: (52-5) 325-07-88; E-mail: lamezcua@prodigy.net.mx

Oct. 20-22, Long Reach, Calif.
AOPA EXPO 2000. Info: Warren Morningstar; Phone: (301) 695-2162; E-mail:warren.morningstar@aopa.org

Oct. 25-28, Montreal, Canada.
Annual Meeting of the American Society for Gravitational and Space Biology; Joint Meeting with the Canadian Space Agency and European Low Gravity Research Association. Info: P. Russell, ASGSB, P.O. Box 12247, Rosslyn, VA 22219; E-mail: <ASGSB@usra.edu>; Web site: <www.asgsb.org>

Oct. 27-29, Rio Grande, Puerto Rico.
International Symposium on the Autonomic Nervous System. Info: Anita Zeller/Sue Paxton, Registrars, American Autonomic Society, Mayo Clinic, 811 Guggenheim, 200 First St. SW, Rochester, MN 55905; Phone: (507) 284-3375; FAX: (507) 284-3133; E-mail: <zeller.anita@mayo.edu>

Oct. 29-Nov. 1, New Orleans, La.
Improving Safety in a Changing Environment. Sponsored by International Federation of Airworthiness, Flight Safety Foundation, and International Air Transport Association. Info: Flight Safety Foundation, 601 Madison Street, Suite 300, Alexandria, VA 22314; (703) 739-6700; FAX: (703) 739-6708; E-mail: <anderson@flightsafety.Org>; Web site: <www.flightsafety.org>

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